

What is claimed is:

1. A method of fusing first and second datasets, comprising:
determining a ranking of a plurality of matching variables associated with the first and second datasets;
generating a hierarchical matching grid including a plurality of levels based on the ranking of the plurality of matching variables;
identifying first and second sets of match candidates from the first and second datasets based on one of the plurality of levels of the hierarchical matching grid; and
fusing records in the first and second sets of match candidates based on probabilities associated with the records.
2. A method as defined in claim 1, wherein determining the ranking of the plurality of matching variables includes ranking the plurality of matching variables based on a relative strength of a relationship between each of the matching variables and a respondent characteristic.
3. A method as defined in claim 1, wherein the first and second datasets include respondent records.
4. A method as defined in claim 1, wherein generating the hierarchical matching grid including the plurality of levels based on the ranking of the plurality of matching variables includes generating a series of binary values so that each of a plurality of bit positions associated with the binary values uniquely corresponds to one of the plurality of matching variables.
5. A method as defined in claim 4, wherein the series of binary values is a sequential series of binary values.

6. A method as defined in claim 4, wherein each of the plurality of bit positions is assigned to its corresponding one of the plurality of matching variables so that higher order ones of the bit positions are associated with more important ones of the matching variables.

7. A method as defined in claim 1, wherein the generating the hierarchical matching grid including the plurality of levels based on the ranking of the plurality of matching variables includes generating the hierarchical matching grid to allow skewed matching on one or more of the matching variables.

8. A method as defined in claim 1, wherein generating the hierarchical matching grid including the plurality of levels based on the ranking of the plurality of matching variables includes establishing a minimum matching level.

9. A method as defined in claim 1, wherein identifying the first and second sets of match candidates from the first and second datasets based on the one of the plurality of levels of the hierarchical matching grid includes using match criteria from the one of the plurality of levels of the hierarchical matching grid to identify records in the second dataset that match records in the first dataset on ones of the plurality of matching variables defined by the match criteria.

10. A method as defined in claim 9, wherein the match criteria includes at least one of a binary value and an allowed skew.

11. A method as defined in claim 1, wherein fusing the records in the first and second sets of match candidates based on the probabilities associated with the records includes establishing the probabilities based on weights associated with records from at least one of the first and second sets of match candidates.

12. A method as defined in claim 1, further comprising:

comparing a first sum of weights associated with the first set of match candidates with a second sum of weights associated with the second set of match candidates;

identifying one of the first and second sets of match candidates as overweight based on the comparison of the first and second sums of weights; and

trimming records of one of the first and second sets of match candidates identified as overweight prior to fusing the records in the first and second sets of match candidates.

13. A method as defined in claim 12, further comprising restoring an excess weight portion of trimmed records to corresponding ones of the first and second datasets.

14. A method as defined in claim 13, further comprising identifying third and fourth sets of match candidates from the first and second datasets including the restored excess weight portion of the trimmed records based on a second level of the hierarchical matching grid; and

fusing records in the third and fourth sets of match candidates based on probabilities associated with records within at least one of the third and fourth sets of match candidates.

15. A method as defined in claim 1, further comprising validating fused records based on index values generated using at least one match percentage.

16. A system for fusing first and second datasets, comprising:
a memory; and
a processor coupled to the memory and configured to:
determine a ranking of a plurality of matching variables associated with the first and second datasets;
generate a hierarchical matching grid including a plurality of levels based on the ranking of the plurality of matching variables;
identify first and second sets of match candidates from the first and second datasets based on one of the plurality of levels of the hierarchical matching grid; and
fuse records in the first and second sets of match candidates based on probabilities associated with the records.
17. A system as defined in claim 16, wherein the processor is configured to determine the ranking of the plurality of matching variables by ranking the plurality of matching variables based on a relative strength of a relationship between each of the matching variables and a respondent characteristic.
18. A system as defined in claim 16, wherein the first and second datasets include respondent records.
19. A system as defined in claim 16, wherein the processor is configured to generate the hierarchical matching grid including the plurality of levels based on the ranking of the plurality of matching variables by generating a series of binary values so that each of a plurality of bit positions associated with the binary values uniquely corresponds to one of the plurality of matching variables.

20. A system as defined in claim 19, wherein the series of binary values is a sequential series of binary values.

21. A system as defined in claim 19, wherein each of the plurality of bit positions is assigned to its corresponding one of the plurality of matching variables so that higher order ones of the bit positions are associated with more important ones of the matching variables.

22. A system as defined in claim 16, wherein the processor is configured to generate the hierarchical matching grid having the plurality of levels based on the ranking of the plurality of matching variables by generating the hierarchical matching grid to allow skewed matching on one or more of the matching variables.

23. A system as defined in claim 16, wherein the processor is configured to generate the hierarchical matching grid including the plurality of levels based on the ranking of the plurality of matching variables by establishing a minimum matching level.

24. A system as defined in claim 16, wherein the processor is configured to identify the first and second sets of match candidates from the first and second datasets based on the one of the plurality of levels of the hierarchical matching grid by using match criteria from the one of the plurality of levels of the hierarchical matching grid to identify records in the second dataset that match records in the first dataset on ones of the plurality of matching variables defined by the match criteria.

25. A system as defined in claim 24, wherein the match criteria includes at least one of a binary value and an allowed skew.

26. A system as defined in claim 16, wherein the processor is configured to fuse the records in the first and second sets of match candidates based on the probabilities associated with the records by establishing the probabilities based on weights associated with records from at least one of the first and second sets of match candidates.

27. A system as defined in claim 16, wherein the processor is configured to:

compare a first sum of weights associated with the first set of match candidates with a second sum of weights associated with the second set of match candidates;

identify one of the first and second sets of match candidates as overweight based on the comparison of the first and second sums of weights; and

trim records of the one of the first and second sets of match candidates identified as overweight prior to fusing the records in the first and second sets of match candidates.

28. A system as defined in claim 27, wherein the processor is configured to restore an excess weight portion of trimmed records to corresponding ones of the first and second datasets.

29. A system as defined in claim 28, wherein the processor is configured to:
- identify third and fourth sets of match candidates from the first and second datasets including the restored excess weight portion of the trimmed records based on a second level of the hierarchical matching grid; and
 - fuse records in the third and fourth sets of match candidates based on probabilities associated with records within at least one of the third and fourth sets of match candidates.
30. A system as defined in claim 16, wherein the processor is configured to validate fused records based on index values generated using at least one match percentage.
31. A machine readable medium having instructions stored thereon that, when executed, cause a machine to:
- determine a ranking of a plurality of matching variables associated with first and second datasets;
 - generate a hierarchical matching grid including a plurality of levels based on the ranking of the plurality of matching variables;
 - identify first and second sets of match candidates from the first and second datasets based on one of the plurality of levels of the hierarchical matching grid; and
 - fuse records in the first and second sets of match candidates based on probabilities associated with the records.

32. A machine readable medium as defined in claim 31 having instructions stored thereon that, when executed, cause the machine to determine the ranking of the plurality of matching variables by ranking the plurality of matching variables based on a relative strength of a relationship between each of the matching variables and a respondent characteristic.

33. A machine readable medium as defined in claim 31 having instructions stored thereon that, when executed, cause the machine to generate the hierarchical matching grid including the plurality of levels based on the ranking of the plurality of matching variables by generating a series of binary values so that each of a plurality of bit positions associated with the binary values uniquely corresponds to one of the plurality of matching variables.

34. A machine readable medium as defined in claim 31 having instructions stored thereon that, when executed, cause the machine to generate the hierarchical matching grid including the plurality of levels based on the ranking of the plurality of matching variables by generating the hierarchical matching grid to allow skewed matching on one or more of the matching variables.

35. A machine readable medium as defined in claim 31 having instructions stored thereon that, when executed, cause the machine to establish a minimum matching level within the hierarchical matching grid.

36. A machine readable medium as defined in claim 31 having instructions stored thereon that, when executed, cause the machine to identify the first and second sets of match candidates from the first and second datasets based on the one of the plurality of levels of the hierarchical matching grid by using match criteria from the one of the plurality of levels of the hierarchical matching grid to identify records in the second dataset that match records in the first dataset on ones of the plurality of matching variables defined by the match criteria.

37. A machine readable medium as defined in claim 31 having instructions stored thereon that, when executed, cause the machine to fuse the records in the first and second sets of match candidates based on the probabilities associated with the records by establishing the probabilities based on weights associated with records from at least one of the first and second sets of match candidates.

38. A machine readable medium as defined in claim 31 having instructions stored thereon that, when executed, cause the machine to:

compare a first sum of weights associated with the first set of match candidates with a second sum of weights associated with the second set of match candidates;

identify one of the first and second sets of match candidates as overweight based on the comparison of the first and second sums of weights; and

trim records of the one of the first and second sets of match candidates identified as overweight prior to fusing the records in the first and second sets of match candidates.

39. A machine readable medium as defined in claim 38 having instructions stored thereon that, when executed, cause the machine to restore an excess weight portion of trimmed records to corresponding ones of the first and second datasets.

40. A machine readable medium as defined in claim 39 having instructions stored thereon that, when executed, cause the machine to:

identify third and fourth sets of match candidates from the first and second datasets including the restored excess weight portion of the trimmed records based on a second level of the hierarchical matching grid; and

fuse records in the third and fourth sets of match candidates based on probabilities associated with records within at least one of the third and fourth sets of match candidates.

41. A machine readable medium as defined in claim 31 having instructions stored thereon that, when executed, cause the machine to validate the fused records based on index values generated using at least one match percentage.

42. A system for fusing datasets, comprising:

a match grid generator configured to generate a hierarchical matching grid having a plurality of levels based on a ranking of a plurality of matching variables associated with first and second datasets;

a match candidate identifier configured to identify first and second sets of match candidates from the first and second datasets based on at least one of the plurality of levels of the hierarchical matching grid; and

a matcher configured to fuse records in the first and second sets of match candidates based on probabilities associated with the records.

43. A system as defined in claim 42, further comprising a ranker configured to determine the ranking of the plurality of matching variables based on a relative strength of a relationship between each of the matching variables and a respondent characteristic.

44. A system as defined in claim 42, wherein each of the first and second datasets includes respondent records.

45. A system as defined in claim 42, wherein the match grid generator is configured to generate the hierarchical matching grid by generating a series of binary values so that each of a plurality of bit positions associated with the binary values uniquely corresponds to one of the plurality of matching variables.

46. A system as defined in claim 42, wherein the match grid generator is configured to generate the hierarchical matching grid by generating the hierarchical matching grid to allow skewed matching on one or more of the matching variables.

47. A system as defined in claim 42, wherein the match grid generator is configured to generate the hierarchical matching grid to establish a minimum matching level.

48. A system as defined in claim 42, wherein the match candidate identifier is configured to identify the first and second sets for match candidates using match criteria from the at least one of the plurality of levels of the hierarchical matching grid to identify records in the second dataset that match records in the first dataset on ones of the plurality of matching variables defined by the match criteria.

49. A system as defined in claim 48, wherein the match criteria includes at least one of a binary value and an allowed skew.

50. A system as defined in claim 42, wherein the fuser is configured to fuse the records in the first and second sets of match candidates by establishing the probabilities based on weights associated with records from at least one of the first and second sets of match candidates.

51. A system as defined in claim 42, further comprising:
a weight checker configured to compare a first sum of weights associated with the first set of match candidates with a second sum of weights associated with the second set of match candidates.

52. A system as defined in claim 51, further comprising a trimmer configured to identify one of the first and second sets of match candidates as overweight based on the comparison of the first and second sums of weights and trim records of the one of the first and second sets of match candidates identified as overweight prior to fusing the first and second sets of match candidates.

53. A system as defined in claim 52, further comprising a restorer that restores an excess weight portion of trimmed records to corresponding ones of the first and second datasets.

54. A system as defined in claim 42, further comprising a system configured to validate fusion of records performed by the matcher.

55. A system as defined in claim 54, wherein the system configured to validate the fusion of records performed by the matcher comprises:

a segmenter configured to segment at least one of the first and second datasets;

a splitter configured to split the segmented at least one of the first and second datasets into equally weighted third and fourth datasets;

a fuser configured to fuse the third and fourth datasets to form a fifth dataset;
and

an index generator configured to use at least a portion of the fifth dataset to generate at least one index value indicative of a performance characteristic of the matcher for use in validating the fusion of records performed by the matcher.

56. A method of fusing datasets, comprising:

ranking a plurality of matching variables associated with first and second datasets; and

fusing records from the first and second datasets based on the ranking of the plurality of matching variables and probabilities associated with the records from the first and second datasets.

57. A method as defined in claim 56, further comprising selecting the records from the first and second datasets based on matching criteria.

58. A method as defined in claim 57, further comprising selecting the matching criteria from a hierarchical match grid including the plurality matching variables and a plurality of levels.

59. A method as defined in claim 58, further comprising generating the hierarchical match grid so that at least one of the plurality of matching variables on at least one of the levels is associated with a skewed matching criteria.

60. A method as defined in claim 56, further comprising:

trimming an overweight proportion from each of the records of one of the first and second datasets; and

using the overweight proportion from each of the records of the one of the first and second datasets to perform a fusion after fusing the records from the first and second datasets.

61. A method of fusing datasets, comprising:

selecting first match criteria that ranks matching variables associated with first and second datasets; and

fusing records from the first and second datasets based on the first match criteria and weights associated with the records from the first and second datasets.

62. A method as defined in claim 61, further comprising:

selecting second match criteria associated with third and fourth datasets; and
fusing records from the third and fourth datasets based on the second match criteria and weights associated with two or more of the first, second, third and fourth datasets.

63. A method of validating a data fusion process, comprising:

splitting a first dataset into second and third datasets;
fusing the second and third datasets to form a fourth dataset;
calculating at least one match rate associated with the fourth dataset; and
generating an index indicative of a performance of the data fusion process based on the at least one match rate.

64. A method as defined in claim 63, further comprising segmenting the first dataset into a plurality of usage categories prior to splitting the first dataset.

65. A method as defined in claim 63, further comprising:
randomly splitting the first dataset a plurality of times to generate a plurality of separate pairs of datasets;
fusing each of the separate pairs of datasets to form a plurality of fused datasets; and
combining the plurality of fused datasets to form the fourth dataset.

66. A system for validating a fusion process, comprising:
a splitter configured to split a first dataset into second and third datasets;
a fuser configured to fuse the second and third datasets to form a fourth dataset;
a match rate calculator configured to calculate at least one match rate associated with the fourth dataset; and
an index generator configured to generate an index indicative of a performance of the data fusion process based on the at least one match rate.

67. A system as defined in claim 66, further comprising a segmenter configured to segment the first dataset into a plurality of usage categories.